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Abstract: *»Herrschaft und Staatseinkommen in Ägypten und Rom: Zur Wechselwirkung von Politischer Stabilität und Besteuerung«*. This paper investigates what determines fiscal institutions and the burden of taxation using a case study from ancient history. It evaluates Levi's model of taxation in the Roman Republic, according to which rulers' high discount rates in periods of political instability encourage them to adopt a more predatory fiscal regime. The evidence for fiscal reform in the transition from the Republic to the Principate seems to support her hypothesis but remains a matter of debate among historians. Egypt's transition from a Hellenistic kingdom to a Roman province under the Principate provides an analogous case for which there are better data. The Egyptian evidence shows a correlation between rulers' discount rates and fiscal regimes that is consistent with Levi's hypothesis.

1. Introduction

Explicit rational choice models are lacking in studies of Greek and Roman political history with few exceptions (Quillin 2002; 2004). Most ancient historians avoid discussing the underlying behavioral assumptions of politics and opening them to criticism or potential falsification. Often the impetus for theoretical debate has to come from social scientists willing to venture into ancient

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history. The topic of this paper was treated in one chapter of Levi's book *Of Rule and Revenue* (1988), which introduces a rational choice model for Roman taxation. The latter is part of the growing social scientific literature concerning the determinants of fiscal policies, in which the rational choice approach plays a leading role (Campbell 1993; Swedberg 2003; Persson and Tabellini 2000; Brennan and Buchanan 1980; Weingast 2002; Weingast and Wittmann 2006). This research is still concentrated on modern industrialized states but there have been a few bold attempts to theorize about taxation in agrarian states and to trace developments over longer periods (Ardant 1971; Bates 1981; Goldsmith 1987; Mann 1988; Tilly 1992; Kiser 1994). Such work bears on the debates among professional ancient historians and offers, if nothing else, an opportunity for interdisciplinary dialogue. Several recent conferences and programmatic articles suggest that scholars are beginning to combine social scientific and ancient historical research (Morris and Weingast 2004; Morris and Manning 2005; Manning and Morris 2005; Morris et al. forthcoming; Ober forthcoming). As the theory of taxation becomes more sophisticated, history promises to become a fertile testing ground for how well competing models explain variations across cultures, regime types, and longer time-spans (Campbell 1993: 175).

This paper has more modest goals. It takes as its starting point Levi's hypothesis that the transition from the Roman Republic to the Principate in the late first century BC brought political stability, which led to rationally calculated fiscal reforms. It examines the effects of this transition in Egypt where there is abundant evidence due to the survival of administrative and tax documents on papyrus and potsherds (Bagnall 1995). Egypt is also an interesting comparison because it was not ruled by Rome during the Republican period but by the Ptolemaic dynasty, which took over after Alexander the Great conquered Egypt. The internal political conditions in the Ptolemaic kingdom resemble those in the troubled period in Rome during the fall of the Republic. When it became part of the Roman Empire in 30 BC, Egypt enjoyed much the same relief from political instability as other provinces. It is thus a partially independent case with which to evaluate the correlation between stability and taxation hypothesized by Levi. This falls far short of the synthesis of recent social scientific approaches that might contribute further insights into the workings of ancient fiscal policy. The aim is rather to present the basic thesis that rulers and their agents rationally manipulate fiscal institutions to maximize their revenue. The notion of rulers as stationary bandits and its implications for economic development have been worked out most fully by Olson (1993; 2000), whose ideas align with the argument of this paper.

2. Rome from Republic to Principate

Levi presents a predatory model of the state where rulers seek to maximize their revenues within the constraints imposed by their bargaining power, by transaction costs, and by discount rates. She applies this model to the development of tax farming in the Roman Republic. Tax farmers (or *publicani*) were private contractors who bid in public auctions to collect state revenue or to supply public services on behalf of the state, paying in advance and bearing the risks of any shortfall. By the late Republican period they were organized into sophisticated associations with wealthy and powerful investors who overlapped increasingly with Rome's political elite (Badian 1972; Malmendier 2002). Levi attributes the system to transaction costs such as the costs of measurement and monitoring compliance that arose as Rome expanded into larger and more unfamiliar territory. But she admits that the reliance on tax farmers may have raised transaction costs as much as it lowered them and that the underlying difficulties involved in ruling a vast territory with a relatively small bureaucracy were as acute in the early Empire when tax farmers' influence waned (Levi 1988: 93). Hence her discussion of the origins of the tax-farming system in Rome is less convincing and anyway more difficult to evaluate given the nature of the early Roman evidence (Kiser 1994).

More persuasive is the explanation for why the tax-farming system flourished in the Republic but declined in the Principate. Discounts rates of rulers and their agents are the crucial factor. Rational actors discount the value of future revenue in relation to present revenue when the future becomes less certain. In other words, the present value of future income equals its expected value minus a discount rate, which increases with uncertainty. While a different taxation policy might stimulate productivity and create higher future revenue, a high discount rate would favor one that maximized short-term revenue. This reasoning suggests an alternative explanation for tax farming, one in which war and regime-survival are the principal determinants of fiscal institutions (Tilly 1992; Eich and Eich 2005). In hindsight the rise of the Roman Empire is too easily seen as inevitable but from the Gallic sack of Rome in 390 BC until the Augustan settlement in 27 BC, Rome's ruling elite suffered under both real and imagined threats from external and, increasingly, internal enemies. Rome's elites had high discount rates and preferred rotating offices, whose rent-seeking opportunities in the provinces were used to finance electoral campaigns and intra-elite competition. This forestalled the development of a professional bureaucracy, which might have lent itself to autocracy and fallen into the hands of their political opponents.

The effect of discount rates is evident not only in how ruling elites manipulate fiscal policy but how their agents, whether subordinate officials or tax farmers, maximize their own revenues. Weber argued that the burden on the taxpayers would depend primarily on the relative bargaining power of the tax

farmer and the "political lord" or ruler (Weber 1968: 965-6). He suggested that the tax farmer was likely to extract as much immediate revenue as possible and was limited only by the political lord who had rights to future revenue and hence an aversion to the diminishing returns of over-exploitation. The same logic presumably applies to other state agents, particularly Rome's provincial governors, who were repeatedly implicated in collusion with tax farmers and fiscal exploitation of their provinces during their limited term of office while the Roman state was unable to constrain them effectively (Kiser 1994: 289-91). While Weber's insight is similar to Levi's, it is based on the assumption that rulers' discount rates were uniformly low by contrast with private tax collectors. Levi supposes that rulers were equally predatory and adopted more intrusive fiscal policies as their discount rates increased (Levi 1988: 74, 93).

The primary burden of late Republican taxation fell on the provincial population rather than on Italy. Direct taxes on Italian land were suspended in 167 BC and indirect taxes on various transactions were further abolished in Italy by 60 BC (Neesen 1980: 11). The tax burden was a logical reflection of the distribution of political power. By the mid-second century Rome's dominance was felt throughout the Mediterranean. At the time tribute was suspended in Italy in 167 BC, Roman was redrawing the political map of Macedonia and arbitrating unilaterally the dispute between the Seleucid and Ptolemaic kingdoms in the East. The collective action problem on the Roman periphery, that is, the problem of concerted resistance or bargaining among widely dispersed and ethnically diverse peoples, gave the Italian countryside and the urban residents of Rome, on which Rome depended for recruits, huge bargaining power for wealth redistribution (Scheidel 2007). In the face of riots on the streets of the capital, political elites from the conservative Cato the Younger to the populist Julius Caesar made the rational choice to hand out free grain extracted from Rome's empire (Plutarch, *Cato the Younger* 26; Appian, *Civil War* II 48; Garnsey 1988: 198-200; Erdkamp 2002: 99-100). It illustrates the urban-bias phenomenon, namely, that mobs in capital cities are easier to organize and hence exert more influence over public policy and fiscal institutions than dispersed rural or peripheral populations (Bates 1981; Ades and Glaeser 1995, 216-8). It also reflects the rulers' high discount rates, as immediate stability outweighs the deleterious long-term effects of rural flight and urban overcrowding.

The civil wars would have made political elites' discount rates higher and increased the fiscal pressure on the periphery. Only when Caesar defeated his opposition did he undertake to lower the tax burden in the provinces, replacing tax farmers with officials for the collection of direct taxes in Asia in 48 BC and allegedly reducing its burden by one third (Plutarch, *Caesar* 48). Admittedly, his finances in 47 BC were not yet in order (Brunt 1990: 380). His assassination in 44 BC once again threw Rome's elites into uncertainty and civil war. His murders, Cassius and Brutus, supposedly levied ten years of taxes in Asia in a single year and subsequently Mark Antony extracted another nine years of

taxes from Asia for his struggle with Octavian. The latter's situation was so desperate that he had to reintroduce direct and indirect taxes on Italian land and Roman citizens, mobilizing the wealth of Italy against his rival (Neeson 1980: 1-16; Brunt 1981). It was a struggle for survival among competing elites and their factions, who were willing to do economic harm to both provincials and Romans to secure their own future dominance.

Octavian's victory and the transition from Republic to Principate form a crucial link in the logic of Levi's argument. She maintains that the discount rate of Rome's new regime would be comparatively low. Hence the elimination of tax farming for direct taxes in the Principate both in Italy and in the provinces provides empirical support for the theoretical model. However, the fiscal reforms of Augustus and his immediate successors are obscure on many points. Caesar's reforms and similar relief of the periphery under Augustus and Tiberius may have ended tax farming for most direct taxes and given cities fiscal autonomy but did not eliminate tax farming altogether (Brunt 1990; De Ligt 2004). Moreover, it is conceivable that even where the form of taxation changed, the burden of taxation on the provinces increased or remained the same. If Augustus and his successors were more concerned with immediate revenue than with their long-term economic prosperity, then one would expect them to use their newly won monopoly of military power to raise taxes rather than lower them.

Testing Levi's hypothesis with a closer examination of the historical sources from the provinces outside Egypt proves more difficult than one might wish. Most scholars seem to accept that the burden of taxation became lower in the provinces under the Principate (Jones 1974: 164-8; Goffart 1974: 16; Rathbone 1996: 322). However, the entire empire was marked by regional differences in fiscal institutions that stem partly from each province's earlier history. In many cases, there was probably continuity with preexisting tax systems and their customary rates. What was new was the development of regular censuses by which Roman officials could more accurately assess the total capitation tax and tribute required (Brunt 1981; Christol 2006). Even if political stability might facilitate direct taxation by making such a census easier to undertake, it need not increase the tax burden overall. When territory is lost or tax collection is disrupted in some areas during periods of instability, the burden is likely to become that much more ruinous for more vulnerable populations. The census on the other hand could help distribute the tax burden more evenly across the population. Moreover, where local urban magistrates took over the collection of the fixed tribute from tax farmers, one would on the face of it expect the burden to decrease, as private Roman investors would be cut out of their profits. In theory, the census should have ensured fixed payments proportional to the population whereas higher productivity would lead to higher taxes under the tax farming system (Brunt 1990: 380; Jones 1974: 165; Bartlett 1994: 292)

but the census might conceivably have been used as a pretext to raise taxes as well (Rathbone 1996: 322-3).

The thesis of Rostovtzeff's influential *Social and Economic History of the Roman World* (1926) was that the Roman provinces and their urban "bourgeoisie" flourished in the Principate due to agricultural intensification, increasing trade, and urbanization, driven by economic liberalization relative to the Republic and the Hellenistic kingdoms that preceded it. Proponents of this thesis, including Rostovtzeff, have placed too much emphasis on commerce, urban manufacturing, and capitalist investment, underestimating the agrarian basis of the ancient economy (Rostovtzeff 1957 [1926]; Oertel 1934). Yet despite decades of criticism and the abandonment of many ancillary claims, the basic proposition that an urban elite in the provinces flourished thanks to secure property rights and a fiscal regime conducive to productive investment under the relatively stable early Principate has not been convincingly refuted.

Egypt once seemed to be an exception to this trend, which was troubling because it happens to be the one province for which there is abundant evidence. Egyptian grain was needed to feed the city of Rome, so the emperors, according to the traditional view, simply took over Egypt's centralized bureaucracy with its oppressive taxation and land tenure system. This did not seriously undermine Rostovtzeff's thesis thanks to the widely accepted peculiarity, or *Sonderstellung*, of Egypt in the Roman Empire. In the last thirty years a revisionist school has effectively challenged the *Sonderstellung* argument and with it the argument for continuity between Ptolemaic and Roman Egypt. It increasingly appears that Egypt fits within the broad pattern of urbanization, civic reforms, privatization, and economic growth in the Roman Empire (Lewis 1970; 1984; Rathbone 1989; 1993; 2000; Bowman and Rathbone 1992; Bagnall 2005). The older view that the early Roman emperors ruthlessly exploited Egypt now seems to be based on a mistaken interpretation of the sources (Milne 1927; Rostovtzeff 1929). In the following sections, I draw on new evidence that provides support for the view that the fiscal reforms in the early Principate lowered tax burdens following the establishment of political stability. While this result cannot automatically be applied to the rest of the Roman Empire, it ought to stimulate comparison and reevaluation of the sources. If nothing else, it presents a partially independent case that is consistent with Levi's hypothesis.

3. Political Instability in Ptolemaic Egypt

Egypt is an interesting test case for the model of predatory rule because the political conditions in Ptolemaic Egypt were similar to those in the Roman Republic but it was formally an independent kingdom before 30 BC and only afterwards subject to Rome's fiscal regime. When Alexander the Great died in

323 BC, one of his generals, Ptolemy, became the governor of Egypt as he contended with other generals for dominance of the eastern Mediterranean. In 305 BC Ptolemy declared himself king and pharaoh of Egypt, establishing a dynasty that would last until its last queen Cleopatra VII and Mark Antony were defeated and Egypt was annexed to Rome in 30 BC. During this period and particularly during the second and first centuries BC, Egypt witnessed a major civil war or revolt at least once in every generation. As rulers with high discount rates, Levi's model predicts that the Ptolemies would likewise have favored policies that maximized short-run revenues over long-run economic growth. Moreover, the discount rate of officials and state-agents would similarly increase as the regime became unstable and as the long-term incentives for fulfilling one's duties diminished relative to the short-term rewards of predation. From this atmosphere of instability in Ptolemaic Egypt emerged many of the same abusive fiscal practices that characterized the late Roman Republic.

Some historians attribute the cause of domestic unrest in Ptolemaic Egypt to excessive taxation and predatory officials, while others interpret them as manifestations of religious or nationalist, anti-Greek feelings (Préaux 1936; Peremans 1978; McGing 1997; Veïsse 2004). An engagement with the social scientific literature on revolts would probably enrich this fruitless scholarly debate (Skocpol 1979; Goldstone 1991). Economic deprivation undoubtedly contributed to the Egyptian revolts. However, it is questionable whether the causality goes from fiscal abuse to political instability. In this section, I explore the opposite causal relationship, arguing that the instability of the Ptolemaic regime, for which the threat of revolt was partly responsible, generated incentives for oppressive fiscal policies and official misconduct. Naturally, such a response could exacerbate economic deprivation and lead to a vicious circle of unrest and predation but the stability of the regime was the main determinant that could break the cycle if order were restored. This provides an interpretive framework for explaining Ptolemaic fiscal policies, which previous scholars simply take as given or ascribe to the kings' greediness and lavish lifestyles caricatured in the literary sources (Polybius, *Histories* V 34; Strabo, *Geography* 17.1.11; Green 1990: 554-5).

A brief historical overview will convey the level of instability (Green 1990; McGing 1997; Hölbl 2001). At its peak in the early third century BC, the dynasty maintained an overseas empire. In the late third century BC, the regime came under increasing pressure from both internal and external competitors. Egyptian revolts followed military campaigns against the Seleucid Empire in 245 BC and 217 BC in Syria-Palestine. For twenty years from 205 to 185 BC, all of southern Egypt revolted and broke away from the Ptolemaic kingdom, establishing a theocratic monarchy with two successive Egyptian pharaohs tied to the priesthood in Thebes. Even after this rebel kingdom was re-conquered, additional revolts broke out in the countryside around the years 165, 131-130, and 88-86 BC. In their repeated wars with the Seleucid Empire over Syria-

Palestine, the Ptolemies suffered major defeats in 195 and 168 BC. On the second occasion, the Seleucid king Antiochus IV conquered all of Egypt except Alexandria, proclaimed himself pharaoh, and planned a permanent occupation but was forced out by the threat of Roman intervention. Struggles over dynastic succession erupted into violence and even civil war in the 200s BC, the 150s, the 130s, almost continuously from the 110s to 80s, and finally in the 50s and 40s BC, when the Romans intervened directly. In connection with these civil disturbances were the frequent urban riots in the city of Alexandria such as those reported in the years 204, 169, 145, 131, 107, 80, 59 and 48 BC.

It is against this political background that one has to evaluate the fiscal policies of the Ptolemaic dynasty. The most influential study of Ptolemaic taxation, written in 1939, depicts Egypt as a "royal economy" dominated in virtually all sectors by the king. Royal control was supposedly at its apex in the early Ptolemaic period and was gradually eroded over time as local elites, especially soldiers and the Egyptian priesthood, won more concessions (Préaux 1939; Rostovtzeff 1941). On the one hand, it is true that political stability in Egypt would have been highest in the early Ptolemaic period, when its rulers could count on clear dynastic succession, a large Greco-Macedonian mercenary army, and overseas territories to underwrite their power at home. On the other hand, the centralization and intrusiveness of the "royal economy" in the early Ptolemaic period have been challenged in the last two decades (Rowlandson 2003; Manning 2005; Bagnall 2007). Manning presents a convincing new synthesis of recent work that sees the trend in reverse: initially the Ptolemies left intact the traditional administrative and fiscal institutions in the Nile Valley, exchanging privileges for the loyalty of Egyptian temples and local elites, but gradually displaced them through a process of bureaucratization in order to extract revenue more effectively (Manning 2003). The story of Ptolemaic flourishing and then gradual decline, as depicted by the ancient Greek historian Polybius in his history of Rome, may be apt for political history but historians are wrong to interpret fiscal institutions through this prism. The Ptolemaic case suggests that political strength and intrusive fiscal policies were inversely correlated, whereas previous historians assumed that they would go together. Levi's model offers one explanation for this phenomenon.

A closer analysis of the taxation of grain-producing land in Ptolemaic Egypt, undoubtedly the state's main source of revenue, will amplify this point. The monetary policy of the Ptolemies is not considered here but it seems to fit the same pattern. The Ptolemaic kings introduced bronze coinage as a fiduciary currency to supplement the silver and gold coinage. The bronze coins were overvalued relative to their weight in metal and the Ptolemaic kings periodically assigned higher values to capture revenue while causing price inflation that became acute in the second and first centuries BC. Unfortunately, the evidence is still too contentious to draw firm conclusions (Reekmans 1951; Maresch 1995; Cadell and Le Rider 1997; Bagnall 1999). Even the evidence

for the direct taxation of grain-producing land is still too inconsistently preserved to evaluate changes in the tax regime in relation to political stability within the Ptolemaic period specifically. Hence I do not argue that tax burdens tended to become heavier in the second and first centuries BC than in the more stable third century BC. Such a hypothesis does follow from the model and is consistent with recent research but it remains open to falsification by future studies and new evidence. The contrast being drawn here is rather between the tax burden in the Ptolemaic period and the tax burden in the Roman period after political stability was established.

For the third century BC little is known about the fiscal regime outside of the clearly untypical Fayyum region. It was untypical because massive irrigation and reclamation projects expanded the Fayyum in the third century BC. Large areas were allotted for development to royal officials or friends as gift-estates that stood outside of the regular fiscal administration (Thompson 1998; Manning 2003: 110-8). The Fayyum also furnished new land for allotments to demobilized or retired Ptolemaic soldiers, who were often charged low fixed taxes, typically one artaba of wheat per aroura.[1] This would imply one tenth of the harvest based on the usual assumption that wheat harvests were about ten artabas/aroura in Egypt but clearly large harvest variations were possible (Scheidel 2001: 224-31). Other land, designated as royal land, was entrusted to villages in the Fayyum in which peasants had customary rights but were not private owners and were liable for rents that averaged about three to seven artabas of wheat per aroura (Crawford 1971; Monson forthcoming a). The pattern in the Fayyum persisted throughout the Ptolemaic period and differs markedly from the pattern in the Nile Valley where most land was privately owned. There may also have been some royal land with communal tenure arrangements in the Nile Valley but if so it is hardly attested and certainly was more limited than in the Fayyum (Monson forthcoming a; b). Land endowed to temples seems to have been more common in the Nile Valley than in the Fayyum but the tenure of temple land is often indistinguishable from private ownership, especially in the Nile Valley (Manning 2003: 182-225; Monson 2005). The fiscal status of temple land varied apparently by region, some being charged a low flat rate like allotments to soldier allotments and some charged harvest taxes (Vandorpe 2000: 199).

As the Ptolemaic fiscal regime in the Nile Valley comes into full view in the second and first centuries BC, the property rights of landowners look less secure than their rights to buy, sell, and inherit land would at first suggest. Limiting them were the king's rights to the harvests at variable rates determined by officials (Vandorpe 2000; Muhs 2005: 62-3). This harvest tax is alternatively termed the "rent in grain", which many scholars insist means that owners only

[1] One artaba per aroura equals about 109 kg of wheat per hectare; the aroura is .2756 hectares and the artaba about 38.78 liters but was not standardized in Egypt and could vary (Pommerening 2005: 166-73).

leased their land from the king (Vandorpe 2000; Christensen 2002; Monson forthcoming a). The assessment of harvest taxes on private land was much like that on royal land in the Fayyum. A scribe determined the rate based on the quality of the land and the flood conditions at the time of planting and, at least in southern Egypt, issued the farmer a receipt (the so-called land office receipts) for how much wheat he would owe to the state after the harvest. Unproductive land would be exempt from harvest taxes for that year. The farmer enjoyed whatever exceeded this amount, for which he had an incentive to work for a good harvest. However, he had little incentive to invest in high quality land or in long-term improvements that would raise its productivity since the officials could simply raise the tax to whatever they deemed he was able to pay. The flat-rate taxes that some soldiers and priests paid for their land entailed higher risk because the entire area rather than only the productive part would be assessed but the low rates in relation to rents or harvest taxes on royal and private land must have compensated for it, otherwise one could not explain why these privileged groups would have preferred them to harvest taxes (Vandorpe 2000: 174-5).

The rate of the harvest tax is known from several regions in the Nile Valley and varied between about four to eight artabas of wheat per aroura. A recently discovered papyrus contains an extensive land survey from the administrative area around Edfu in southern Egypt. According to this text at least 20,000 arouras, which amounts to nearly half of the Edfu region, were classified as private land and assessed the harvest tax at an average rate of 6.34 artabas per aroura, whose exact rate varied according to its location. The small areas of temple land and land allotted to soldiers mentioned in this text were also assessed harvest taxes at similar rates. The term for harvest tax is only applied to private land but the rate and variation of taxes on the other types leave little doubt that they were likewise assessed instead of charged the low flat rate known for this land elsewhere (Christensen 2002; cf. Crawford 1971). In an administrative area called the Herakleopolite further north, the rate was two to four artabas of wheat per aroura but these landowners had to pay an additional land tax in money (Brashear 1980: 136 n. 1).

The best series of data for the rate of the harvest tax comes from the so-called land office receipts known exclusively from southern Egypt around Thebes and Pathyris. They date from the early second century BC to 14 AD, the end of the reign of Augustus. Vandorpe is the first to interpret these texts convincingly and to demonstrate their significance (Vandorpe 2000). The dozens of examples published so far indicate that the rate of the harvest tax in these regions varied between four and ten artabas of wheat per aroura (Kaplony-Heckel and Kramer 1985; Kaplony-Heckel 1993; 1994; 1999; 2001; Vandorpe 2000: 196). The rates for the harvest tax are within the same order of magnitude as the rates of rent for cultivators of royal land in the Fayyum and thus considerably higher than the flat rates paid by more privileged taxpayers.

Like the Edfu land survey, these texts make clear that some temple land also paid harvest taxes at comparably high rates even if elsewhere some temple land was charged at the privileged flat rate.

Before turning to the Roman period, the Ptolemaic fiscal regime should be considered against the background of political instability. At critical moments during or after the revolts, the Ptolemaic kings issued amnesty decrees that sought to diffuse tensions by curbing fiscal abuses. The beginning of the reign of Ptolemy V (r. 204-180 BC) was particularly uncertain. Not only did rebels control most of the southern Egypt, but a new revolt broke out in the Delta, which Ptolemy's generals crushed in battles in 197 and 185 BC and on both occasions captured, tortured, and killed its leaders. After the first of these victories in the Delta and after a successful campaign in the south that recovered territory as far as the rebel capital Thebes, the priests loyal to the king convened in Memphis in 197 BC and issued a trilingual decree honoring Ptolemy (preserved in the famous Rosetta stone). With it, they publicized an amnesty to the effect that rebels who surrendered would retain their property rights to any land they owned, presumably in the recovered territory (McGing 1997: 287; Austin 2006: 491-6). One month after the news reached Alexandria that the revolt in the south had finally been crushed and order was restored, Ptolemy V issued a more general amnesty. It forgave crimes, including abuses by officials and soldiers of their position, and it relieved unpaid harvest taxes as well as rents on royal land.

This type of amnesty decree was a predictable response in light of the rulers' relatively low discount rates immediately after stability had been restored. After the civil war that erupted over the dynastic struggle between Ptolemy VIII and his wife/sister Cleopatra II (incestuous marriage was the royal norm) lasting from about 131 to 124 BC and subsequent unrest in the following years, the reunited royal couple issued joint amnesty decrees in around 118 BC. In one of them, they confirmed that private landowners or private persons who had been entered into the privileged class of military settlers would retain their status and no longer be required to pay harvest taxes on their land or be required to perform compulsory service (Lenger 1964: 161-6). Presumably, it means that they would pay instead the one-artaba land tax as well as be exempt from corvée labor on the irrigation canals. In a much longer amnesty decree from around the same year, the rulers promised a number of fiscal and administrative reforms to alleviate the pressure on the productive population (Lenger 1964: 128-158; Austin 2006: 501-8). Among them were the usual vows to curb abuse by officials and tax collectors and to provide landowners with relief from excessive taxation and forced lease of royal land. This text has been used to support the thesis that Ptolemaic revolts were caused by official abuse, corruption, and excessive taxation. That the amnesties relate to the chaos *during* the revolts suggest that the causality runs in the opposite direction. Political instability raised the discount rates of both rulers and their agents. Mistrust, ethnic

tension, insecurity, and civil unrest were endemic until the end of the Ptolemaic dynasty.

4. Fiscal Reform in Roman Egypt

Egypt's development after its incorporation into the Roman Empire in 30 BC is what throws the Ptolemaic fiscal regime into sharp relief. While Levi's model provides an explanatory framework for Ptolemaic political history, the evidence for this period is still insufficient (partly because so many Egyptian texts are unpublished) to assess fluctuations in tax policy over time. It remains only a hypothesis that the Ptolemaic rulers and their agents manipulated fiscal institutions to maximize revenue in response to particular crises. On the other hand, taking a broader view of the differences between the Ptolemaic and Roman regimes presents clear contrasts for analysis. If Levi's hypothesis is right then increased political stability in the Roman period should have led to more favorable fiscal policies for the productive population than in the Ptolemaic period. If the alternative hypothesis is correct, that rulers will adopt more intrusive fiscal policies when the elimination of rivals gives them a freer hand, then we should expect the burden of taxation in Roman Egypt to remain constant or increase. The case of Egypt suggests that the lower discount rate of the early emperors Augustus and Tiberius led them to adopt the former strategy with positive results for agricultural intensification and economic growth.

The crux of the argument is the elimination of harvest taxes on private land and the introduction of low flat land taxes. There is no text that refers directly to this reform but it is an inevitable conclusion based on official land registers, receipts, and accounts from the early Roman period. It is widely accepted that private land in Roman Egypt was assessed the so-called one-artaba tax, a flat rate of usually one artaba per aroura (Wallace 1938: 11-19). Contrary to earlier scholarship, studies since the 1970s rightly emphasize that the largest share of land in Roman Egypt was private land (Rowlandson 1996: 63-9; Monson forthcoming b). The Roman administration in the reign of Augustus reformed the various fiscal categories under two main headings: public and private land. In some regions, notably the Fayyum, much of the private land can be traced back to the allotments to soldiers in the Ptolemaic period, which were frequently (though not always) taxed at the privileged rate of one artaba and which already had largely become *de facto* private property. Land could also become private by purchasing public land from the state. However, only recent research, which shows that private land or *de facto* private temple land was already extensive in the Nile Valley during the Ptolemaic period, can explain the large proportion of private land in the early Roman period (Monson 2005; forthcoming b; cf. Capponi 2005: 103).

The difference is that Ptolemaic private landowners paid harvest taxes at variable rates of four to eight artabas per aroura while Roman private landowners paid the one-artaba tax. The last datable land office receipts for the harvest tax date to the final year of the reign of Augustus, which suggests that the fiscal reforms took place at the beginning of the reign of the emperor Tiberius (Kaplony-Heckel 1999). This would fit conveniently with the anecdotes in Dio Cassius' history and Suetonius' biography of Tiberius. The governor of Egypt raised considerably more tax revenue than had been expected but Tiberius scolded him with the command: "I want my sheep sheared, not flayed" (Dio Cassius, *Roman History* LVII 10; Suetonius, *Tiberius* 32 has him addressing his governors generally). While hardly evidence for specific reforms, it betrays a self-conscious recognition of the ruler's low discount rate. The fiscal reforms for private land in Egypt must predate 47 AD because a land survey from southern Egypt is preserved that gives the complete information about landholdings and tax rates in one village in that year (Kenyon and Bell 1907: 70-6; Wallace 1938: 16-7; Monson forthcoming b). According to that text, 78% of the village was charged variations of the one-artaba tax or, more precisely, 56% at one artaba, 21% at ¾ artaba, and 1% at other rates. The remaining 22% was public land, or royal land as it was often still called. The tax regime on public land remained like it was in the Ptolemaic period: farmers paid rent to the state that varied at high levels essentially like the harvest tax and subject to the same abuses by officials (Wallace 1938: 11; Sharp 1999: 238-9). Several Roman decrees attempted to remedy these abuses by ordering officials to inspect the land each year rather than apply high rates inflexibly (Chalon 1964, edict of the Egyptian prefect T. Julius Alexander in 68 AD; Kornemann and Meyer 1912: 22-38, edict of the emperor Hadrian in 117 AD). However, the area of land subject to this fiscal regime was far more limited than in the Ptolemaic period.

The Tiberian strategy, to shear the sheep rather than flay them, paid off in Egypt. Several scholars have argued recently that Egypt experienced not only population growth but also per capita economic growth during the Roman period. A study of Roman census declarations from Egypt, for example, suggests demographic growth at about 0-0.5% annually (Bagnall and Frier 1994: 81-90). Based on various estimates, urbanization may have reached by the third century AD a level not surpassed until the late nineteenth or twentieth century (Tacoma 2006: 37-68). What made this growth possible was partly the increase in trade and urban crafts in Egypt as it was integrated into the Roman Empire (Bagnall 2005). Egypt became among other things an entrepôt for the Indian luxury trade via the Red Sea (Rathbone 2001). Most importantly, economic growth would have been due to the intensification of agriculture on private estates. Rathbone argues convincingly that private property rights in Roman Egypt gave farmers an incentive to invest in land and to make improvements. He points to the diffusion of water lifting technologies, which had already been

known in Ptolemaic Egypt but became widespread on private estates only in the Roman period (Rathbone 2007a; 2007b).

Previous explanations for the growth and development of private estates in Roman Egypt suppose that the Romans extended the private ownership of land in Egypt for the first time. This underestimates how much land could already be legally bought, sold, inherited, and leased in the Ptolemaic period. The change of fiscal regime has not adequately been taken into account. To illustrate this point, Chart 1 presents a series of data, albeit a small sample, for the sale price of private land in the southern Egyptian town of Pathyris (Cadell 1994). What we know about this land is that it was normal grain-producing land whose owners had private rights of conveyance and that it was assessed the harvest tax. For comparison, Chart 2 shows prices of land in Roman Egypt (Drexhage 1991: 127-35).

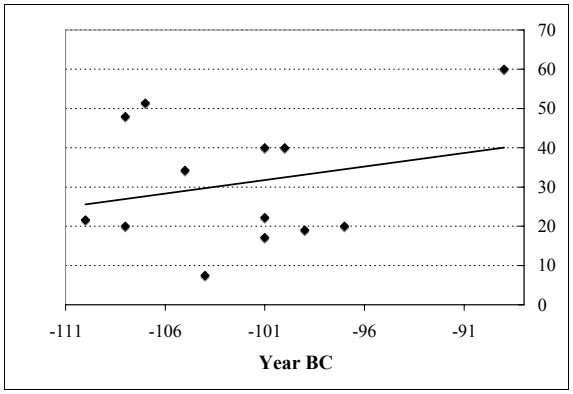
These data present problems, not least controlling for the quality of the land, but sufficiently convey the order of magnitude. What makes them so difficult to compare is the aforementioned price inflation in the Ptolemaic period, particularly during the second and first centuries BC. The prices must be converted from overvalued bronze drachmas, whose weight is not securely known, to silver drachmas (weighing about 3.575 g). Assuming equal weight of the drachmas and no fiduciary value, bronze to silver is thought to be valued at about 125:1 based purely on the metal content but this is probably a minimum because the bronze drachma was almost certainly overvalued and probably also heavier (Bagnall 1999: 202-3). The ratio of grain prices reckoned in late Ptolemaic bronze drachmas (118-93 BC) to grain prices reckoned in silver drachmas in the first century AD is about 155:1, which would imply an average land price of 60 silver drachmas in Ptolemaic Pathyris.[2] The notional ratio according to conversions in late Ptolemaic contracts is 300:1, which implies an average of 31 silver drachmas and is the ratio used in Chart 1 (Maresch 1995: 111, 205). The attested direct conversions of bronze to silver drachmas during the period 115-79 BC average to about 450:1, giving a land price of 21 silver drachmas (Maresch 1995: 196-8).

Whatever realistic ratio is used, the result is the same: the price of land in Ptolemaic Pathyris was 5 to 15 times lower than in the Roman period. Maresch (1995: 85-7) assumes that land prices would have been the same in Ptolemaic and Roman Egypt and uses these data to support his questionable interpretation of Ptolemaic money values and terminology (Cadell and Le Rider 1997: 70-73 and Bagnall 1999: 200-1). The low price of land has also been noted in pharaonic Egypt but not sufficiently explained (Baer 1962). The fiscal regime of variable and relatively high harvest taxes, which also applied in earlier periods of Egyptian history, may partially account for it (Vandorpe 2000, 2007). Similarly, private leasing, and hence the possibility for larger accumulations of

[2] Average grain price, 118-93 BC, is 1364 bronze drachmas (Maresch 1995: 192); the first century AD average is 8.8 silver drachmas (Drexhage 1991: 20).

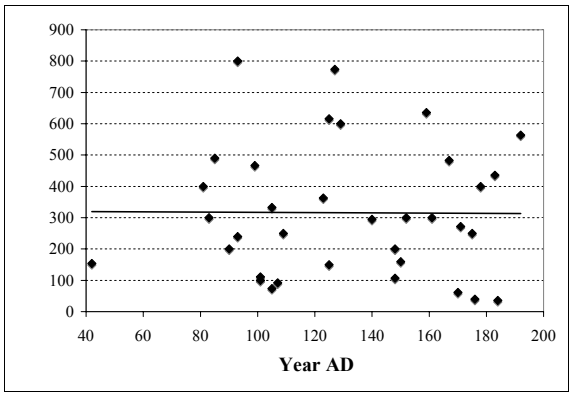
land, tends to be associated with land charged the one-artaba tax in Ptolemaic Egypt such as soldiers' allotments or temple land that had a privileged fiscal status. Hence the tax reforms in early Roman Egypt would have raised the demand for investment in private land. As a result, it is possible to observe wealthy urban residents, including Alexandrians and even Romans, buying up estates in the Egyptian countryside and leasing them out, which would have been hardly profitable and much more difficult to administer under the harvest tax regime. In Ptolemaic Egypt, only land in special fiscal categories presented similar incentives for development but it tended to be allocated by status and royal favor rather than by markets.

Chart 1: Land Prices in Ptolemaic Pathyris



(Mean: 31 drachmas per aroura)

Chart 2: Land Prices in Roman Egypt



(Mean: 316 drachmas per aroura)

The Roman fiscal reforms in Egypt have to be seen against the political backdrop of relative stability. The conquest of Egypt was followed by a revolt of the southern city of Thebes. Fuks (1953: 141-9) shows that the Jewish revolt of 115-7 AD spread to the countryside but non-Jewish Egyptian landowners and peasants remained loyal to the state. But aside from these, there was not another major Egyptian insurrection in the countryside until second half of the second century AD, in 152 and 172 AD (Lewis 1983: 196-207). The second of these broke out in the Delta around the time of the Antonine plague when one of the Egyptian legions was away in Germany. It required aid from the Roman commander in Syria but supposedly fizzled out due to internal disunity among the rebels (Dio Cassius, *Roman History* 72.4; Lewis 1983: 205). It is difficult to separate myth from reality since our account of this so-called "revolt of the bandits" (boukoloi) was probably influenced and embellished by popular myths (Alston 1999). Nevertheless, Rome's ability to draw on such external forces illustrates the strength of its position in Egypt relative to the Ptolemaic dynasty, which would have been a deterrent to revolt. That is not to say that law and order always prevailed in Egypt. Lacking the power base for organized rebellion, the disaffected turned to banditry, a threat that Roman governors faced throughout the empire (Shaw 1984). Moreover, the Alexandrian mob was famously prone to riot but that was typical for large ancient cities and especially for one of this size, second only to Rome in the empire. Such urban violence has to be interpreted as a means to extract concessions from calculating political elites resident in the city who redistribute wealth from the countryside.

5. Conclusion

In summary, Levi's model generates the hypothesis that the transition from the turbulent late Republic to the Principate would have been accompanied by fiscal reforms that eased the tax burden on periphery. Generally, political elites tend to overtax outer provincial and rural areas and to favor politically sensitive core and urban areas. The more unstable their political situation, the higher their discount rates become, causing them to extract more revenue or to ensure immediate survival despite long-term negative consequences for future revenue or survival. The same applies to subordinate agents and officials who would be more tempted to abuse their position to capture revenue as the regime itself became less stable. Egypt's transition from Ptolemaic to Roman rule provides a good case study. It suggests a significant break with the fiscal regime of the Ptolemaic period. The relatively low tax burden for landowners in Roman Egypt demands an explanation. It seems to falsify the hypothesis that political stability in the Principate would have caused the emperors to extract even higher revenues because they had a freer hand. Rather it supports the thesis that

provincial subjects of the Roman Empire would have profited from a peace dividend as rulers had lower discount rates.

The model is open to criticism because it is difficult to specify in empirical terms a precise measure for political instability. Moreover, there are other assets besides revenue that rulers or political elites might value and that might motivate them to adopt policies that do not conform to the predictions of the model. The first limitation forces the analysis to remain at a fairly general macro-historical level, comparing fiscal regimes of the Republic and the Principate of Ptolemaic and Roman Egypt. The second limitation is intrinsic to rational choice models that simplify reality in order to illustrate specific relationships. They may be as useful for spotting deviations from the postulated trends as for identifying correlations. Hence the rational choice approach is just one of several promising methods for identifying the determinants of fiscal institutions.

There are other potential causes for the elimination of harvest taxes in Roman Egypt that have admittedly not been treated here adequately. One is the potential advantage of flat taxes relative to variable harvest taxes in terms of measurement and enforcement costs. The latter fiscal regime requires officials to inspect the fields regularly in order to keep the tax burden fairly distributed but also demands oversight of the officials in order to prevent abuses. The switch to flat taxes on private land in the Roman period corresponds with a more gradual shift away from centralized bureaucracy toward a liturgical system in Egypt where the now fiscally privileged landowners who met certain property qualifications were required to discharge official functions at their own expense. An attempt to lower administration and agency costs might have been a contributing factor but so might the Roman emperors' fear of an autocratic Egyptian governor and a centralized bureaucracy with fiscal powers to match those of an Egyptian king. Such a regime might pose greater threats to Rome than one administered by a governor of lower status (senators were barred from Egypt) and by local elites rather than officials.

Another potential cause of reform is the role that culture plays in the formation of fiscal policies. This article can be seen partly as a reaction to ancient historians' overemphasis on cultural explanations for political and economic institutions. It rejects above all the thesis that Ptolemaic fiscal policy was determined by the degeneracy and hedonism of the later Ptolemaic rulers that ancient writers ridiculed. However, it was consistent with ancient Egyptian religious traditions, at least as they are represented by self-interested royal and priestly elites, that land belonged ultimately to the divine king or to the temples of the gods. This notion might well have been used to legitimize violations of private property rights and the collection of the harvest tax, which in Ptolemaic Egypt was synonymous with rent (Manning 2003: 157-60). Roman society, by contrast, was dominated by landowning urban elites who regarded redistribution and even the taxation of their rural estates by the state as a vicious attack

on property rights (Cicero, *On Duties* II 73-4; Chiusi 2005). In these ideological differences some historians find an explanation for the apparent expansion of private land in Roman Egypt but they are vague about the process of the cultural transmission (Lewis 1970: 8).

The Roman governors and local magistrates of Egypt undoubtedly modeled their civic and fiscal institutions more on Greco-Roman traditions than Egyptian ones. However, this line of argument exaggerates the significance of royal ownership in Ptolemaic Egypt underestimates the extent of private land. One cannot deny that individuals often respond predictably to resource scarcity and fiscal incentives and that private property rights and analogous taxation regimes can evolve in different societies without cultural influence. The rational choice approach is a corrective against culturally deterministic explanations but cannot ignore culture altogether. Part of its usefulness of historical analysis is to identify and control for how decisions are shaped by contingent preferences, beliefs, and historical situations while it aims to test rational choice models about how individuals will react to given circumstances.

References*

Ades, Alberto F./Glaeser, Edward F. (1995): "Trade and Circuses: Explaining Urban Giants". In: Quarterly Journal of Economics. 110 (1). S. 195-227.

Alston, Richard (1999): "The Revolt of the Boukoloi: Geography, History, and Myth". In: Hopwood, Keith (Hg.): Organized Crime in Antiquity. London. S. 129-53.

Ardant, Gabriel (1971): L'histoire de l'impôt. Livre I: De l'antiquité au XVIIe siècle. Paris.

Austin, Michael (2006): The Hellenistic World from Alexander to the Roman Conquest: A Selection of Ancient Sources in Translation. Cambridge.

Badian, Ernst (1972): Publicans and Sinners: Private Enterprise in the Service of the Roman Republic. Oxford.

Baer, Klaus (1962): "The Low Price of Land in Ancient Egypt". In: Journal of the American Research Center in Egypt. 1. S. 25-45.

Bagnall, Roger S. (1995): Reading Papyri Writing Ancient History. London.

Bagnall, Roger S. (1999): "Review of Hélène Cadell and Georges Le Rider, Prix du blé et numéraire dans l'Égypte lagide de 305 à 173". In: Schweizerische Numismatische Rundschau. 78. S. 197-203.

Bagnall, Roger S. (2005): "Evidence and Models for the Economy of Roman Egypt". In: Manning, Joseph G./Morris, Ian (Hg.): The Ancient Economy: Evidence and Models. Stanford. S. 197-204.

* The ancient authors cited in the notes are widely available, for example, in the series of the Loeb Classical Library, Harvard University Press, or via the Perseus Project at Tufts University (www.perseus.tufts.edu).

Bagnall, Roger S. (2007): “Introduction: Jean Bingen and the Currents of Ptolemaic History”. In: Bingen, Jean (Hg.): Hellenistic Egypt: Monarchy, Society, Economy, Culture. Berkeley. S. 1-12.
Bagnall, Roger S./Frier, Bruce W. (1994): The Demography of Roman Egypt. Cambridge.
Bartlett, Bruce (1994): “How Excessive Government Killed Ancient Rome”. In: Cato Journal. 14 (2). S. 287-303.
Bates, Robert H. (1981): Markets and States in Tropical Africa: The Political Basis of Agricultural Policies. Berkeley.
Bowman, Alan K./Rathbone, Dominic (1992): “Cities and Administration in Roman Egypt”. In: Journal of Roman Studies. 82. S. 107-127.
Brashear, William M. (1980): Ptolemäische Urkunden aus Mumienkartonage. Berlin.
Brennan, Geoffrey/Buchanan, James M. (1980): The Power to Tax: Analytical Foundations of a Fiscal Constitution. Cambridge.
Brunt, Peter A. (1981): “The Revenues of Rome”. In: Journal of Roman Studies. 71. S. 161-72. Reprinted. In: Brunt, Peter A. (1990): Roman Imperial Themes. Oxford. S. 324-46.
Brunt, Peter A. (1990): “Publicans in the Principate”. In: Brunt, Peter A.: Roman Imperial Themes, Oxford. S. 354-432.
Cadell, Hélène (1994): “Le prix de vente des terres dans l’Égypte ptolémaïque d’après les papyrus grecs”. In: Allam, Schafik (Hg.): Grund und Boden in Altägypten (rechliche und sozio-ökonomische Verhältnisse). Tübingen. S. 289-306.
Cadell, Hélène/Le Rider, Georges (1997): Prix du blé et numéraire dans l’Égypte lagide de 305 à 173. Bruxelles.
Campbell, John L. (1993): “The State and Fiscal Sociology”. In: Annual Review of Sociology. 19. S. 163-85.
Capponi, Livia (2005): Augustan Egypt: The Creation of a Roman Province. London.
Chalon, Gérard (1964): L’édit de Tiberius Julius Alexander. Étude historique et exégétique. Lausanne.
Chiusi, Tiziana J. (2005): „Strukturen des römischen Eigentums im Spiegel rhetorisch-philosophischer Texte Ciceros“. In: Eckl, Andreas/Ludwig, Bernd (Hg.): Was ist Eigentum? Philosophische Positionen von Platon bis Habermas. Munich. S. 59-72.
Christensen, Thorolf (2002): The Edfu Nome Surveyed: P. Haun. Inv. 407 (119-118 B.C.). Ph.D. Dissertation. Cambridge University.
Christol, Michel (2006): “Les outils de la fiscalité: l’arrière-plan romain”. In: Rigaudière, Albert et al. (Hg.): De l’estime au cadastre en Europe. Le Moyen Âge. Colloque des 11, 12 et 13 juin 2003. Paris. S. 25-58.
De Ligt, Luuk (2004): “Direct Taxation in Western Asia Minor”. In: de Ligt, Luuk et al. (Hg.): Roman Rule and Civic Life: Local and Regional Perspectives. Amsterdam. S. 77-93.
Drexhage, Hans-Joachim (1991): Preise, Mieten/Pachten, Kosten und Löhne im römischen Ägypten bis zum Regierungsantritt Diokletians. St. Katharinen.
Eich, Armin/Eich, Peter (2005): “War and State-Building in Roman Republican Times”. In: Scripta Classica Israelica. 24. S. 1-33.

Erdkamp, Paul P.M. (2002): "'A Starving Mob Has No Respect': Urban Markets and Food Riots in the Roman World, 100 B.C. – 400 A.D". In: de Blois, Lucas/Rich, John (Hg.): The Transformation of Economic Life under the Roman Empire. Amsterdam. S. 93-115.
Fuks, Alexander (1953): "The Jewish Revolt in Egypt (A.D. 115-117) in Light of the Papyri". In: Aegyptus. 33. S. 131-58.
Garnsey, Peter (1988): Famine and Food Supply in the Graeco-Roman World: Responses to Risk and Crisis. Cambridge.
Goffart, Walter (1974): Caput and Colonate: Towards a History of Late Roman Taxation. Toronto.
Goldsmith, Raymond W. (1987): Premodern Financial Systems: A Historical Comparative Study. Cambridge.
Goldstone, Jack A. (1991): Revolution and Rebellion in the Early Modern World. Berkeley.
Green, Peter (1990): Alexander to Actium: The Historical Evolution of the Hellenistic Age. Berkeley.
Hölbl, Günter (2001): A History of the Ptolemaic Empire. London.
Jones, Arnold Hugh Martin (1974): "Taxation in Antiquity". In: Jones, Arnold H.M.: The Roman Economy: Studies of Ancient Economic and Administrative History, Oxford. S. 151-186.
Kaplony-Heckel, Ursula (1993): „Theben-Ost I". In: Zeitschrift für Ägyptische Sprache und Altertumskunde. 120. S. 42-71.
Kaplony-Heckel, Ursula (1994): „Thebanische Acker-Amt-Quittungen". In: Allam, Schafik. (Hg.): Grund und Boden in Altägypten (rechtliche und sozioökonomische Verhältnisse). Tübingen. S. 189-197.
Kaplony-Heckel, Ursula (1999): „Theben-Ost II". In: Zeitschrift für Ägyptische Sprache und Altertumskunde. 126. S. 41-54.
Kaplony-Heckel, Ursula (2001): „Theben-Ost III". In: Zeitschrift für Ägyptische Sprache und Altertumskunde. 129. S. 24-40.
Kaplony-Heckel, Ursula/Kramer, Bärbel (1985): „Ein griechisch-demotisches Holztäfelchen mit Sitologenquittung und Privatabrechnung für Epigraphe aus Krokodilopolis". In: Zeitschrift für Papyrologie und Epigraphik. 61. S. 43-57.
Kenyon, Frederic G./Bell, Harold I. (1907): Greek Papyri in the British Museum, III. London.
Kiser, Edgar (1994): "Markets and Hierarchies in Early Modern Tax Systems: A Principal-Agent Analysis". In: Politics & Society. 22. S. 284-315.
Kornemann, Ernst/Meyer, Paul M. (1912): Griechische Papyri im Museum des oberhessischen Geschichtsvereins zu Giessen, I. Leipzig.
Lenger, Marie-Thérèse (1964): Corpus des Ordonnances des Ptolémées (C.Ord.Ptol.). Bruxelles.
Levi, Margaret (1988): Of Rule and Revenue. Berkeley.
Lewis, Naphtali (1970): "Graeco-Roman Egypt: Fact or Fiction?". In: Samuel, Deborah H. (Hg.): Proceedings of the Twelfth International Congress of Papyrology. Toronto. S. 3-14. Reprinted in: Lewis, Naphtali (1995): On Government and Law: Collected Essays of Naphtali Lewis. Atlanta. S. 138-49.
Lewis, Naphtali (1983): Life in Egypt under Roman Rule. Oxford.
Lewis, Naphtali (1984): "The Romanity of Roman Egypt: A Growing Consensus". In: Atti del XVII Congresso internazionale di Papirologia. Naples. S. 1077-84.

Reprinted in: Lewis, Naphtali (1995): On Government and Law: Collected Essays of Naphtali Lewis. Atlanta. S. 298-305.
Malmendier, Ulrike (2002): Societas publicanorum: Staatliche Wirtschaftsaktivitäten in den Händen privater Unternehmer. Cologne.
Mann, Michael (1988): "State and Society, 1130-1815: An Analysis of English State Finances". In: Mann, Michael (Hg.): States, War, and Capitalism. London. S. 73-123.
Manning, Joseph G. (2003): Land and Power in Ptolemaic Egypt: The Structure of Land Tenure. Cambridge.
Manning, Joseph G. (2005): "The Relationship of Evidence to Models in the Ptolemaic Economy". In: Manning, Joseph G./Morris, Ian (Hg.): The Ancient Economy: Evidence and Models. Stanford. S. 163-86.
Manning, Joseph G./Morris, Ian (Hg.) (2005): The Ancient Economy: Evidence and Models. Stanford.
Maresch, Klaus (1996): „Bronze und Silber: Papyrologische Beiträge zur Geschichte der Währung im ptolemäischen und römischen Ägypten bis zum 2. Jahrhundert n. Chr". In: Papyrologica Coloniensia. 25. Cologne.
McGing, Brian C. (1997): "Revolt Egyptian Style: Internal Opposition to Ptolemaic Rule". In: Archiv für Papyrusforschung. 43 (2). S. 273-314.
Milne, J. Graflon (1927): "The Ruin of Egypt by Roman Mismanagement". In: Journal of Roman Studies. 17. S. 1-13.
Monson, Andrew (2005): "Sacred Land in Ptolemaic and Roman Tebtunis". In: Lippert, Sandra/Schentuleit, Maren (Hg.): Tebtynis und Soknopaiu Nesos: Leben im römerzeitlichen Fajum. Wiesbaden. S. 79-91.
Monson, Andrew (forthcoming a): "Royal Land in Ptolemaic Egypt: A Demographic Model". In: Journal of the Economic and Social History of the Orient. 50 (4).
Monson, Andrew (forthcoming b): "Communal Agriculture in the Ptolemaic and Roman Fayyum". In: Lippert, Sandra/Schentuleit, Maren (Hg.): Greco-Roman Fayyum: Texts and Archaeology. Wiesbaden.
Morris, Ian/Manning, Joseph G. (2005): "The Economic Sociology of the Ancient Mediterranean World". In: Smelser, Neil J./Swedberg, Richard (Hg.): The Handbook of Economic Sociology. Second Edition. Princeton. S. 131-159.
Morris, Ian/Saller, Richard/Scheidel, Walter (2007): "Introduction". In: Scheidel, Walter/Morris, Ian/Saller, Richard (Hg.): The Cambridge Economic History of the Greco-Roman World. Cambridge. S. 1-12. [forthcoming]
Morris, Ian/Weingast Barry R. (2004): "Institutions, Economics, and the Ancient Mediterranean World". In: Journal of Institutional and Theoretical Economics. 160 (4). S. 702-8.
Muhs, Brian (2005): "Tax Receipts, Taxpayers, and Taxes in Early Ptolemaic Thebes". In: Oriental Institute Publications. 126. Chicago.
Neesen, Lutz (1980): Untersuchungen zu den direkten Staatsabgaben der römischen Kaiserzeit. Bonn.
Ober, Josiah (forthcoming): "Democratic Athens as an Experimental System: History and the Project of Political Theory". In: Creager, Angela et al. (Hg.): Science without Laws: Model Systems, Cases and Exemplary Narratives. Durham.
Oertel, Friedrich (1934): "The Economic Unification of the Mediterranean Region: Industry, Trade, and Commerce". In: Cook, Stanley A. et al. (Hg.): The

Cambridge Ancient History, Volume X: The Augustan Empire. Cambridge. S. 382-424.
Olson, Mancur (1993): "Dictatorship, Democracy, and Development". In: American Political Science Review. 87 (3). S. 567-76.
Olson, Mancur (2000): Power and Prosperity: Outgrowing Communist and Capitalist Dictatorships. New York.
Peremans, W. (1978): "Les revolutions égyptiennes sous les Lagides". In: Maehler, Herwig/Strocka, Volker Michael (Hg.): Das ptolemäische Ägypten. Akten des internationalen Symposions 27.-29. September 1976 in Berlin. Mainz. S. 39-50.
Persson, Torsten/Tabellini, Guido (2000): Political Economics: Explaining Economic Policy. Cambridge.
Pommerening, Tanja (2005): „Die altägyptischen Hohlmaße". In: Studien zur altägyptischen Kultur. Beiheft. 10. Hamburg.
Préaux, Claire (1936): "Esquisse d'une histoire des revolutions égyptiennes sous les Lagides". In: Chronique d'Égypte. 11. S. 522-52.
Préaux, Claire (1939): L'économie royale des Lagides. Bruxelles.
Quillin, James M. (2002): Imaginary Invasions of Italy: Fear Propaganda, Consensus, and Imperialism, 200-146 B.C. Ph.D. Dissertation. Stanford University.
Quillin, James M. (2004): "Information and Empire: Domestic Fear Propaganda in Republican Rome, 200-149 BCE". In: Journal of Institutional and Theoretical Economics. 160 (4). S. 765-85.
Rathbone, Dominic W. (1989): "The Ancient Economy and Graeco-Roman Egypt". In: Criscuolo, Lucia/Geraci, Giovanni (Hg.): Egitto e storia antica dell'ellenismo all'età araba. Bilanco di un confronto. Bologna. S. 159-76. Reprinted in: Scheidel, Walter/von Reden, Sitta (Hg.): The Ancient Economy. New York. S. 155-69.
Rathbone, Dominic W. (1993): "Egypt, Augustus and Roman Taxation". In: Cahiers du Centre Gustav Glotz. 4. S. 81-112.
Rathbone, Dominic W. (1996): "The Imperial Finances". In: Bowman, Alan et al. (Hg.): The Cambridge Ancient History, Second Edition, Volume X: The Augustan Empire, 43 B.C.–A.D. 69. Cambridge. S. 309-23.
Rathbone, Dominic W. (2000): "Ptolemaic to Roman Egypt: The Death of the Dirigiste State?". In: Lo Cascio, Elio/Rathbone, Dominic (Hg.): Production and Public Powers in Classical Antiquity. Cambridge Philological Society Supplementary. 26. Cambridge. S. 44-54.
Rathbone, Dominic W. (2001): "The 'Muziris' Papyrus (SB XVIII 13167): Financing Roman Trade with India". In: Abd-el-Ghani, Mohammed et al. (Hg.): Alexandrian Studies II in Honor of Mostafa el Abbadi. Alexandria. S. 39-50.
Rathbone, Dominic W. (2007a): "Mechanai (Waterwheels) in the Roman Fayyum." In: Capasso, Mario/Davoli, Paola (Hg.): New Archaeological and Papyrological Researches on the Fayyum. Lecce. S. 251-62.
Rathbone, Dominic W. (2007b): "Roman Egypt". In: Scheidel, Walter/Morris, Ian/Saller, Richard (Hg.): The Cambridge Economic History of the Greco-Roman World. Cambridge. S. 698-719.
Reekmans, Tony (1951): "The Ptolemaic Copper Inflation". In: Studia Hellenistica. 7. S. 61-119.
Rostovtzeff, Michael I. (1957): The Social and Economic History of the Roman Empire. Second Edition. Oxford [1926].

Rostovtzeff, Michael I. (1929): “Roman Exploitation of Egypt in the First Century A.D”. In: Journal of Economic and Business History. 1 (3). S. 337-64.
Rostovtzeff, Michael I. (1941): The Social and Economic History of the Hellenistic World. Oxford.
Scheidel, Walter (2001): Death on the Nile: Disease and the Demography of Roman Egypt. Leiden.
Scheidel, Walter (2007): “A Model of Real Income Growth in Roman Italy”. In: Historia. 56. S. 322-46.
Sharp, Michael (1999): “Shearing Sheep: Rome and the Collection of Taxes in Egypt, 30 BC – AD 200”. In: Eck, Werner (Hg.): Lokale Autonomie und römische Ordnungsmacht in den kaiserzeitlichen Provinzen vom 1. bis 3. Jahrhundert. Munich. S. 213-41.
Shaw, Brent D. (1984): “Bandits in the Roman Empire”. In: Past and Present. 105. S. 3-52.
Skocpol, Theda (1979): States and Social Revolutions: A Comparative History of France, Russia, and China. Cambridge.
Swedberg, Richard (2003): The Principles of Economic Sociology. Princeton.
Tacoma, Laurens E. (2006): Fragile Hierarchies: The Urban Elites of Third-Century Roman Egypt. Leiden.
Thompson, Dorothy J. (1998): “Irrigation and Drainage in the Early Ptolemaic Fayyum”. In: Bowman, Alan K./Rogan, Eugene (Hg.): Agriculture in Egypt from Pharaonic to Modern Times. Oxford. S.107-22.
Tilly, Charles (1992): Coercion, Capital, and European States, AD 990-1990. Oxford.
Vandorpe, Katelijn (2000): “The Ptolemaic Epigraphe or Harvest Tax (shemu)”. In: Archiv für Papyrusforschung. 46 (2). S. 169-232.
Vandorpe, Katelijn (2007): “Agriculture, Temples and Tax Law in Ptolemaic Egypt”. In: García, Juan C.M. (Hg.): L’agriculture institutionnelle en Égypte ancienne: état de la question et perspectives interdisciplinaires. Villeneuve d’Ascq. S. 165-71.
Veïsse, Anne-Emmanuelle (2004): “Les ‘révoltes égyptiennes’: recherches sur les troubles intérieurs en Égypte du règne de Ptolémée III à la conquête romaine”. In: Studia Hellenistica. 41. Leuven.
Wallace, Sherman LeRoy (1938): Taxation in Roman Egypt. Princeton.
Weber, Max (1968): Economy and Society. Berkeley.
Weingast, Barry (2002): “Rational-Choice Institutionalism”. In: Katznelson, Ira/Milner, Helen V. (Hg.): Political Science: The State of the Discipline. New York. S. 660-92.
Weingast, Barry R./Wittman, Donald A. (2006): “Introduction: The Reach of Political Economy”. In: Weingast, Barry R./Wittman, Donald A. (Hg.): The Oxford Handbook of Political Economy. Oxford. S. 3-25.